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Item 10 (c) of the provisional agenda*

NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Programme

The technical session on the effects of disasters on modern societies has been organized by the United Nations Centre for Regional Development.

Summary. All activities of the International Decade for Natural Disaster Reduction are recognized as being preparatory work for the twenty-first century when the world must deal with denser populations, mostly concentrated in urban areas and supported by advanced technology and modernized social systems. In this context, the first part of the session will focus on topics of natural disaster risks in modern societies from the aspects of magacity vulnerability, environmental degradation, scientific risk assessment and international cooperation, followed by a discussion of policies for natural disaster reduction in modern societies, and the development of infrastructural engineering, satellite technologies and insurance systems.

Part One. Risk of natural disasters in modern societies

Disaster management in metropolitan areas

Mr. Shinjiro Mizutani, Chairman, Aichi/Nagoya International Conference on the IDNDR, 1993

Urban environmental degradation and vulnerability to disasters

Mr. Mohan Munasinghe, Division Chief for Environmental Policy, World Bank

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* A/CONF.172/1.

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Risk management and preventive planning in megacities: a scientific approach for action

Mr. Philippe Masure, International Association of Engineering Geology

Coordination and integration of international projects on risk assessment in megacities

Mr. Yoshikazu Kitagawa, Director, International Institute of Seismology and Earthquake Engineering

Comments and discussion with the participation of high-ranking personalities from selected megalopolises

Part Two. Policies for natural disaster reduction in modern societies

Megacities: vulnerability of infrastructure to natural disasters

Mr. Stuart Mustow, President, Institution of Civil Engineers/World Federation of Engineering Organizations

Application of satellite remote sensing for natural disaster reduction in developing countries

Mr. Niek Rengers, International Astronautical Federation/International Institute for Aerospace Survey and Earth Sciences (ITC)

Use of mobile satellite communications in natural disaster preparedness and emergency response

Mr. Eugene Staffa, International Mobile Satellite Organization (INMARSAT)

Role of non-life insurance in disaster management systems

Mr. Takashi Onoda, Chairman, The Marine & Fire Insurance Association of Japan

Comments and discussion with the participation of high-ranking personalities from selected megalopolises.

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(86)

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NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Addendum

Disaster management in metropolitan areas

Summary of presentation by Mr. Shinjiro Mizutani, Chairman, Aichi/Nagoya International Conference on the International Decade for Natural Disaster Reduction, 1993

1. In the metropolitan regions of many countries, infrastructure has been constructed without adequate consideration given to disaster prevention and environmental assessment. This seems to lead to severe damages caused by natural disasters and, as a result, to increase the risk of complex emergencies.

2. To confront these existing conditions and with the future state of metropolitan areas in mind, the Aichi/Nagoya International Conference 1993 was held in November 1993 under the theme of "Disaster management in metropolitan areas for the 21st century". A total of 1,100 experts from 46 countries and nine international organizations participated. Based on the reports and discussions of that Conference, and bearing in mind that the promotion of disaster prevention and risk managements in metropolitan areas should be done on the basis of an accurate risk assessment, the following measures were put forth:

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* A/CONF.172/1.

(a) Development of risk assessment and management methods which meet the current needs and capabilities of each region and country;

(b) Formulation and implementation of a land development project which takes regional disaster management into account;

(c) Establishment and dissemination of an effective building code in order to ensure the safety of hospitals, schools and other important public facilities;

(d) Enhancement of information exchange regarding disaster management, which includes disaster information and prediction of prevention technology, and the establishment of information networks on a global scale;

(e) Disaster mitigation on lifeline systems;

(f) Promotion of the development of self-help organizations and voluntary activities for disaster prevention, as well as strengthening their communication with public organizations.

3. Working towards the above points in terms of disaster management, especially in metropolitan areas in developing countries for the remainder of the Decade, a discussion will be held on what should be promoted and realized.

4. Taking into account the proposals made at the Aichi/Nagoya International Conference, and from the short-term as well as long-term point of view, the following proposals will be presented: (a) promotion of the development of self-help organizations and voluntary activities for disaster prevention, as well as supporting activities, to ensure the safety of important public facilities such as hospitals and schools during the short term; (b) development of risk assessment and management methods which takes into account both the natural and social environment of a region and promotion of land development planning based on such assessment; and (c) improvement of information systems with regard to disaster management, and the establishment of an information network on a global scale.

5. Also proposed is the promotion of a study to encourage disaster reduction, to be carried out by an international research team under the theme of "Risk assessment and management". An information network and centre focused exclusively on disasters is also highly important so as to utilize and disseminate the developed technology and the results thereof.

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(87)

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NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Addendum

Urban environmental degradation and vulnerability to disasters

Summary of presentation by Mr. Mohan Munasinghe,
Division Chief, Environmental Policy, World Bank

1. The increasing pace of urbanization and the growing scale of urban-industrial activity is exacerbating environmental degradation in developing country cities, and increasing the vulnerability of urban dwellers to both natural and technological disasters. Sustainable development of urban areas requires a balanced approach, based on economic, social and environmental criteria.

2. The presentation will explore an integrated analytical framework to analyse the principal links between unsustainable urban development and vulnerability, especially in large cities. Physical and social impacts of disasters and their economic value need to be determined. The balance between investment projects, market incentives and regulatory measures to improve environmental management and reduce vulnerability require assessment of the relative costs and benefits of these actions. Information availability and education of urban dwellers, as well as risk perceptions and political motivations play a key role. Constraints at all levels of city government, especially those that hinder local community participation and action, are major problems. A major effort is required to encourage urban administrators to strengthen disaster preparedness, prevention and mitigation, redirect municipal spending, and learn from the experience of other urban communities.

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NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Addendum

Risk management and preventive planning in megacities: a scientific approach for action

Summary of presentation by Mr. Philippe Masure, International Association of Engineering Geology

1. It is expected that by the year 2000 about 50 per cent of the world's population, or 6.5 billion people, will live in an urban environment and thus will be concentrated on less than 0.7 per cent of the land surface.

2. The accelerating growth of megacities throughout the world has produced impacts on the physical environment that, even in well-established cities, are self destructive; in addition, the demand for ground space in rapidly growing cities, has led to the use of land that is fraught with natural hazards when developed. These two tendencies increase the number of victims of natural disasters and the vulnerability of modern societies, especially in poor countries.

3. Within the framework of the International Decade for Natural Disaster Reduction, the concept of sustainable development requires an overall approach to problems, taking account of all elements that can influence the environment for urban planning and bearing in mind the objective of public safety and health, that is:

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* A/CONF.172/1.

(a) Environmental assessment of projects and the protection of the environment;

(b) Continuous monitoring of the environment and environmental management;

(c) Study and management of risks, including plans for their prevention and crises preparedness;

(d) Design and use of spatial models of the environment.

4. The sound and safe management of the physical environment and natural hazards is a fundamental factor for urban planning. It is neither a privileged nor a dominant factor, but it should never be neglected.

5. Multi-disciplinary teams should be created and coordinated with a view to the acquisition of complex data that must be processed and managed in a dynamic manner and that must be translated into easily understandable recommendations and instructions for the users (decision-makers and persons charged with educating the population).

6. This requires from the scientists and engineers and from the politicians and other economic and social decision-makers, as well as from the population in general, that a permanent dialogue be created and maintained, further enriched by adapting sectoral experiences from other fields.

7. In this context, applied sciences have a central role to play in filling the major gaps in our knowledge, improving and adapting disaster-mitigation techniques, and developing integrated methodologies to manage both risks and the environment in urban planning and institutional systems.

8. Some of the research and development programmes to be developed in this context are:

(a) Economic evaluation of the direct and indirect damage caused by natural disasters in megacities; and cost-effect analyses of the prevention programmes;

(b) Definition of the concept of geo-ecological capacity of urban sites (resources and fragility) in order to ensure a sustainable development;

(c) Systems analysis models of physical instability of megacities;

(d) Preparation of a geo-ecological information system to help in the decision-making process for the urban planning of megacities.

(e) Adaptation of construction codes to different socio-economic and technological levels.